



# Steampunk CO2 Gatling Gun & Costume

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## TOOLS:

- [Dremel tool \(1\)](#)
- [Misc. shop tools \(1\)](#)
- [Power drill or drill press \(1\)](#)
- [Soldering iron \(1\)](#)

## PARTS:

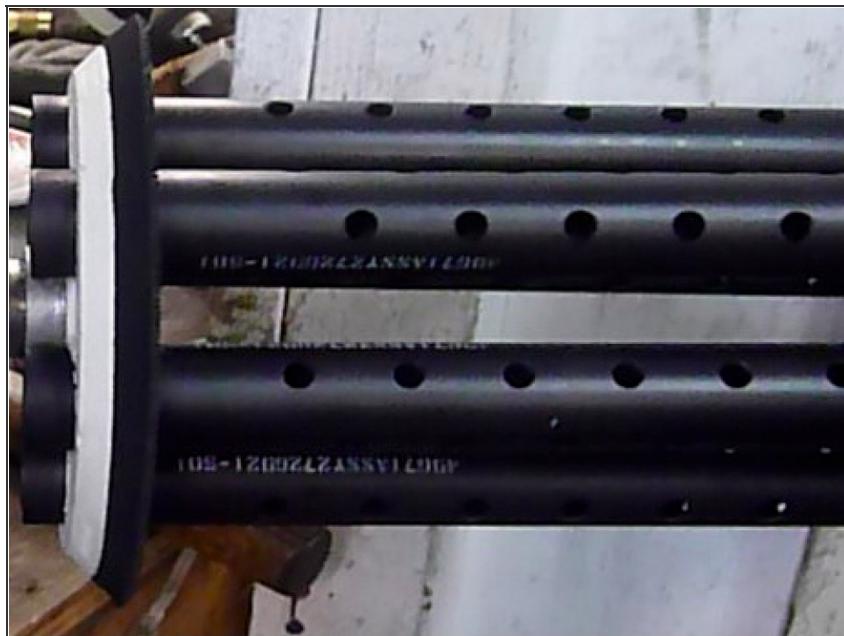
- [10 lb. CO2 fire extinguisher \(1\)](#)

## SUMMARY

This project requires knowledge of woodworking, metal working, simple electronics, and access to a lot of parts. It runs off a battery and CO2.

The CO2 tank is carried in a rolling backpack. A quick-release hose connector permits the gun to be carried without a tether, and allows quick CO2 tank swaps as needed.

## Step 1 — Steampunk CO2 Gatling Gun & Costume



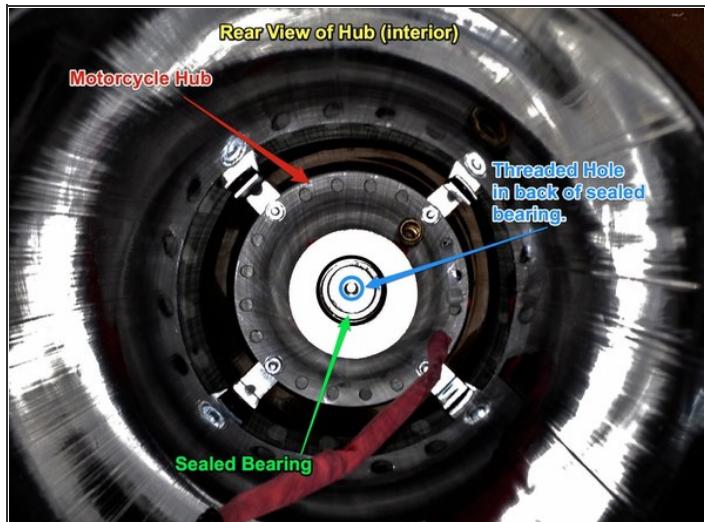
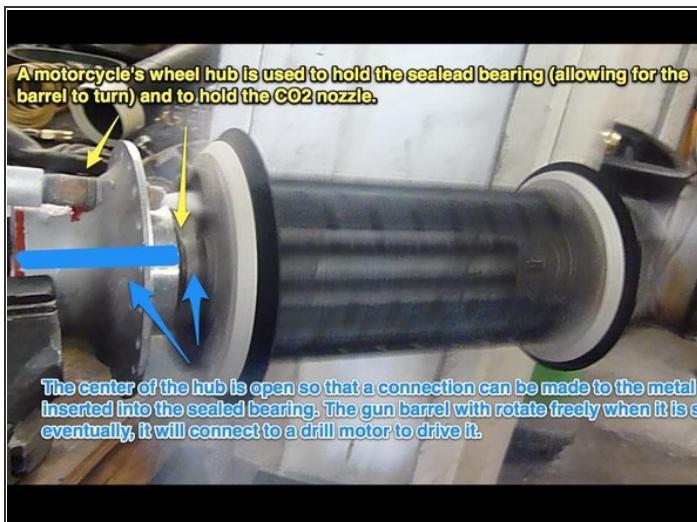
- Drill 1/4" holes every 1 1/2" in six 14"-long thin walled 3/4" PVC pipes. Paint them black.

## Step 2



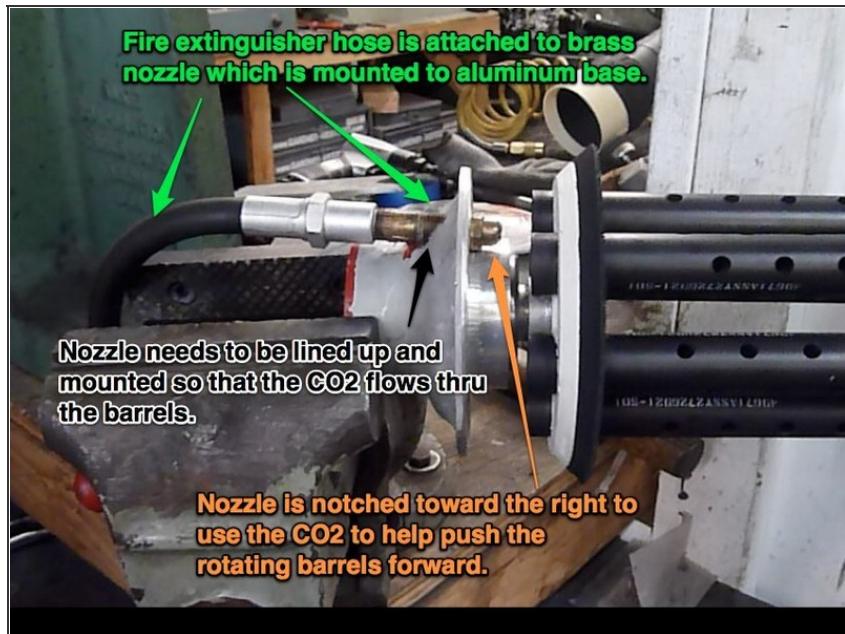
- Drill six 3/4" holes evenly spaced and centered into two round 6" sanding disks.
- Disks should be plastic on the back, and rubber and velcro on the other side. There should be a threaded bolt that is centered in the disk.
- Once the holes are drilled and lined up, insert the pipes. Push them through so that the front of the pipes protrude 2 inches.
- The bottom disk's pipes should protrude about 3/4". Make sure the pipes are all even and that the disks are straight.

### Step 3



- A motorcycle's wheel hub is used to hold the sealed bearing (allowing for the barrel to turn) and to hold the CO<sub>2</sub> nozzle.
- A hole is drilled all the way through a piece of metal that is mounted in the center of the sealed bearing. The threaded bolt from the bottom plastic sanding disk (which holds the gun barrel pipes) is attached and tightened to the front of the hub as shown.
- In a later step, a threaded rod will attach to the threaded hole in the back of the hub. This rod will attach to a screw gun motor on the other end of the unit; that will turn the gun barrels.
- The gun barrel unit should rotate freely when it is spun.

## Step 4



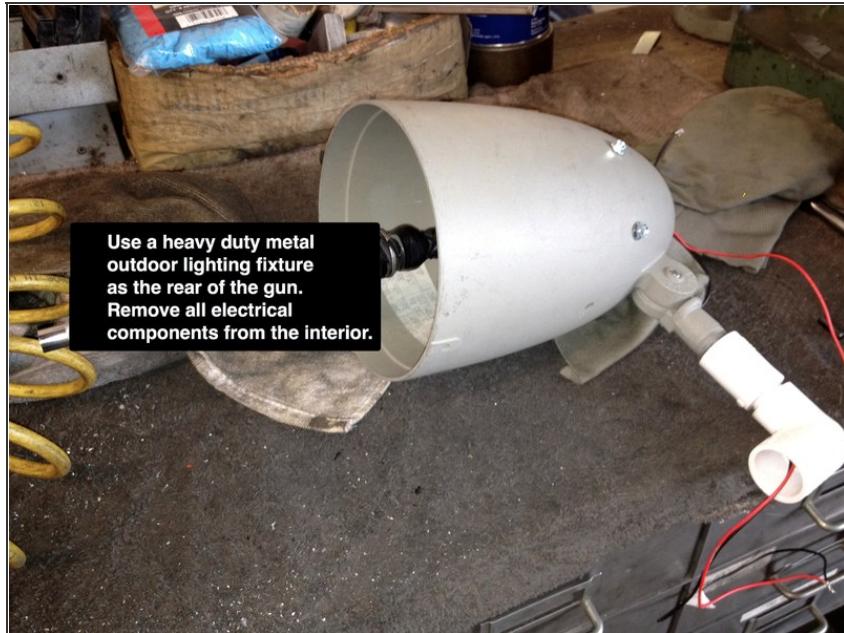
- The fire extinguisher hose is attached to a brass nozzle which is threaded through the wheel hub.
- The nozzle needs to be lined up and mounted so that the CO<sub>2</sub> flows through the barrels.
- The nozzle is notched toward the right so that the force of the CO<sub>2</sub> will cause the barrel unit to rotate.

## Step 5



- A power screw gun should be taken apart to be used as the turning mechanism when CO<sub>2</sub> is not being used.
- This will allow the motor to be powered and switched on externally.

## Step 6



- Use a heavy-duty metal outdoor light fixture as the rear of the gun. Remove all electrical components from inside the fixture.

## Step 7



- A base made of 2"x3" wood should be cut and shaped to fit into the bottom of the light fixture.
- A hole for the drill motor should be cut all the way thru the wood. Make sure there are holes drilled into the side of the wood to provide ventilation for the motor.
- An easy-turning ratchet should be attached to the drill and secured with electrical tape.

**Step 8**

- Size the wood block so that it fits snugly into the bottom of the metal housing.
- If necessary, notch the wood to fit over any raised metal tabs inside the unit.

**Step 9**

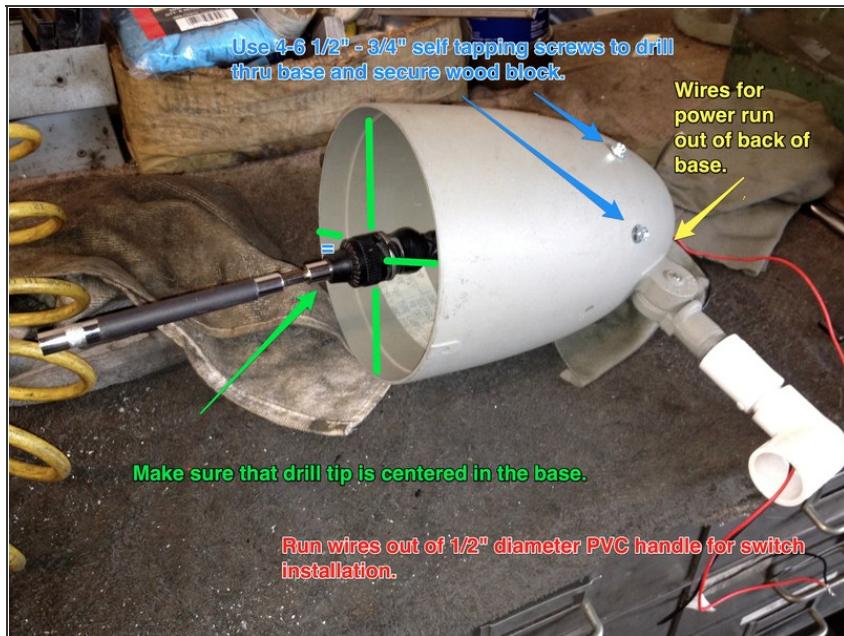
- A hole is drilled to allow the motor to be mounted in the wood block. Use silicon tape wrapped around the motor to hold it snug in the hole.
- The bottom of the block will be placed in the bottom of the metal housing.
- Wires are soldered to the motor's contact points. Heat-shrink tubing is used to protect the exposed connections.

## Step 10



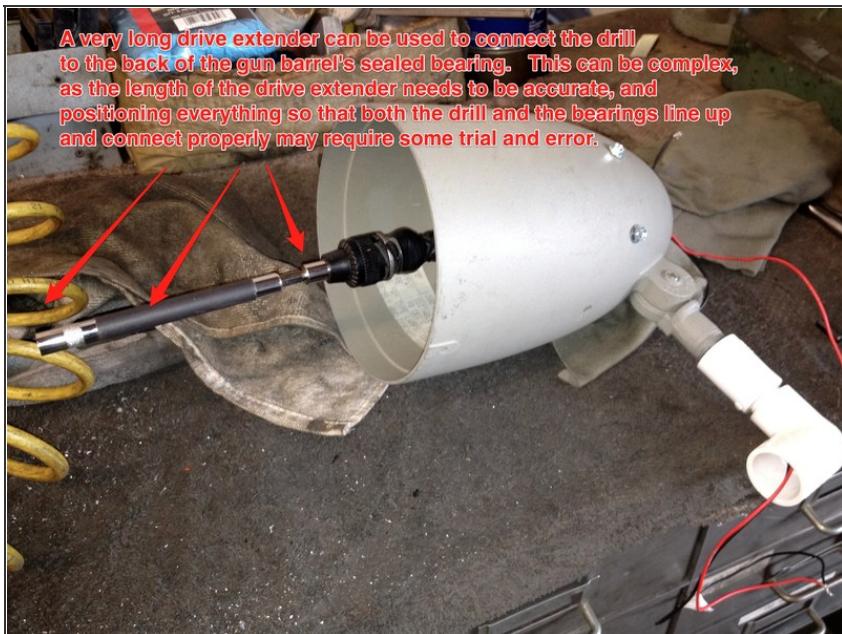
- Using a grinder or heavy-duty Dremel tool, cut an oval hole on the bottom of the light housing (the light is inverted so that the adjustable pipe is now on top, and used as a top handle.)
- The hole should be cut near the back of the unit and should not interfere with the wood base holding the drill motor.
- The CO<sub>2</sub> hose (and some wiring if lights are added in the unit) will be routed thru the hole.

## Step 11



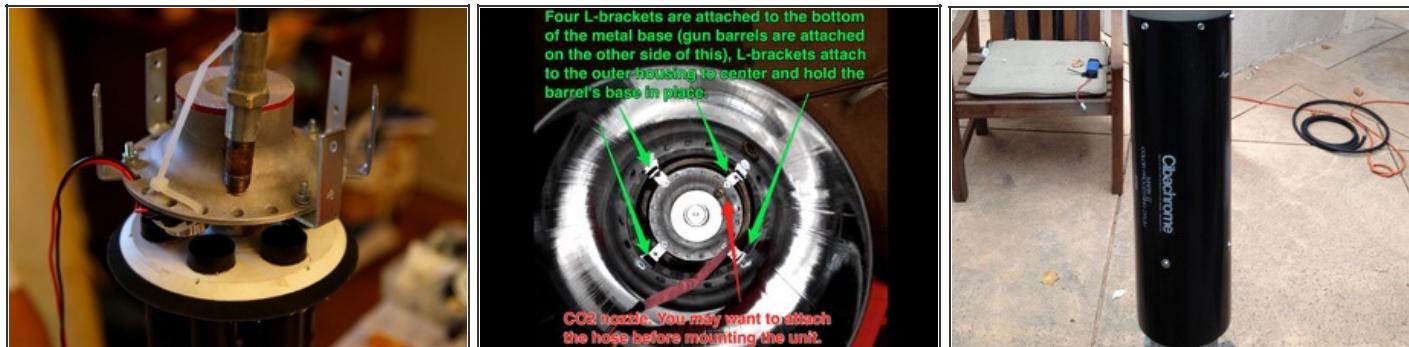
- Place the wood block into the bottom of the metal housing. Use four 6 3/4" self-tapping screws to drill through the base and secure the wood block.
- Make sure that the screw gun's tip is centered when securing the block.
- Add a PVC 1/2" threaded piece and a threaded 1/2" to 3/4" elbow piece to the pipe running out of the fixture.
- Test the direction of the motor by applying power to it. It should be wired so that the motor turns in the same direction (to the right) as the CO<sub>2</sub> nozzle pushes the barrels.
- Bring one of the motor's wires through the PVC handle, and thread an additional wire through the handle and out the center hole in the back of the metal housing. Take the second wire from the motor and route it out the back of the metal housing.

## Step 12



- A very long threaded rod can be used to connect the screw gun to the sealed bearing at the rear of the gun barrel.
- It can be tricky to get everything to line up and connect properly. The rod needs to be cut to the correct length (which will be more evident in the following steps).

## Step 13



- Mount four "L" brackets to the bottom edge of the hub unit. They should be evenly spaced and secure. (Five are shown in the first image, but that was reduced to four evenly-spaced brackets in the final installation).
- A long plastic tube (a film developing tube, available on eBay) will be attached to the metal light fixture housing (base) to extend the length of the gun. The plastic tube should fit snugly over the opening of the metal base.
- The wheel hub holding the spinning barrels should be mounted in the tube about 6" from the top (front) of the tube.
- Place the hub and "L" brackets in position and mark where the holes should go. Holes should be predrilled in the tube, then the brackets positioned and fastened with screws, nuts and locking washers. Tighten well.

## Step 14



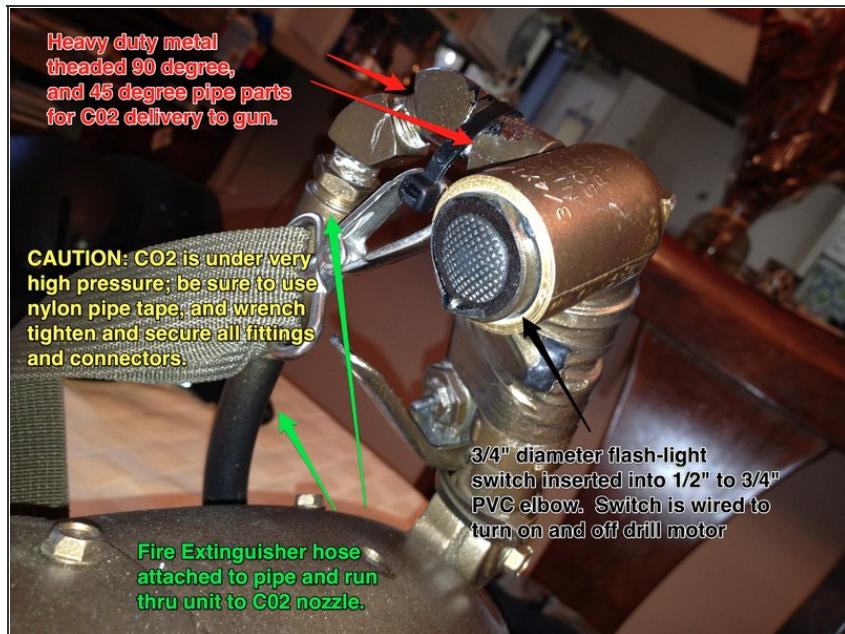
- Connect threaded rod from the screw gun motor to the back of the threaded sealed bearing.
- Position and center the light fixture (base), making sure that the CO<sub>2</sub> nozzle is at the top (lined up with the handle in the base).
- Make sure hoses and wires don't interfere with the turning of the barrels.
- Secure the tube to the light housing. Pre-drill 6-8 holes every 3-4" around the edge of the tube. Use self-tapping screws to secure the two pieces together.
- Assistance may be needed to hold the two pieces secure and aligned as the screws are installed.

## Step 15



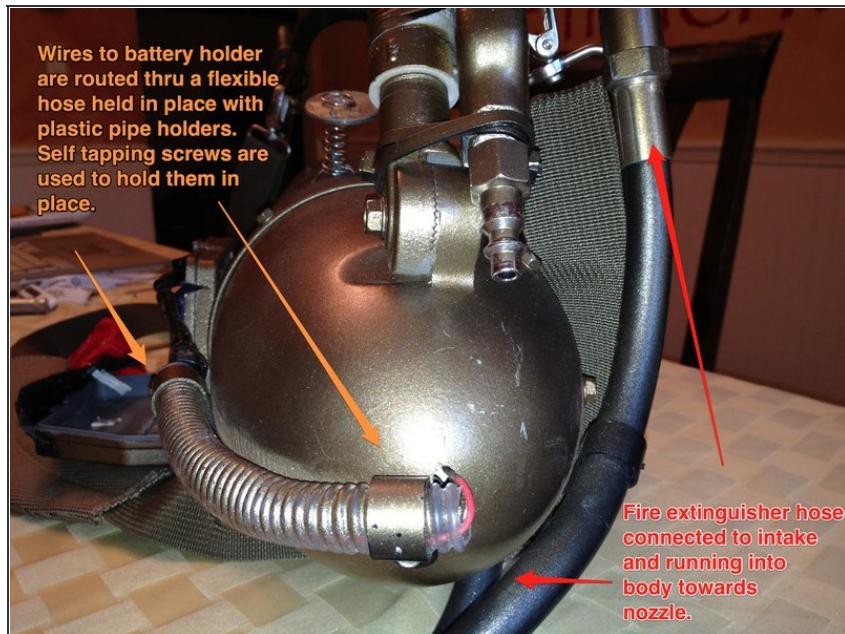
- Using newspaper, mask off the gun barrels. Spray paint the rest of the unit bronze.
- A hose hanger (found at hardware stores) is used as the front handle of the gun. Electrical or handlebar tape is added on top to improve the grip.
- A hole is drilled on each side through the handle and the plastic tube. Washers are placed on both sides of the handle to provide a smooth movement. Inside, a locking washer and nut are attached to a threaded bolt.
- Round foam or handlebar covers can be used at the base of each "foot" on the handle to protect the tube from being scratched and to allow the unit to be placed on the ground securely.

## Step 16



- Heavy duty metal threaded 45- and 90-degree pipe parts are used for a flexible CO<sub>2</sub> delivery to the gun. In this case, motorcycle oil-line connectors were used for their size and strength.
- A 3/4" diameter flash-light switch is connected to the wires and inserted and attached to the PVC elbow. The switch is wired to turn the screw gun motor on and off.
- Fire extinguisher hose is attached to the pipe, run through the tube and connected to the CO<sub>2</sub> nozzle near the rotating barrels.
- CAUTION: The CO<sub>2</sub> is under VERY high pressure. Be sure to use nylon pipe tape at every pipe connection point. Wrench-tighten and secure all fittings and connectors. Pressure-test and adjust to eliminate any leakage.

## Step 17



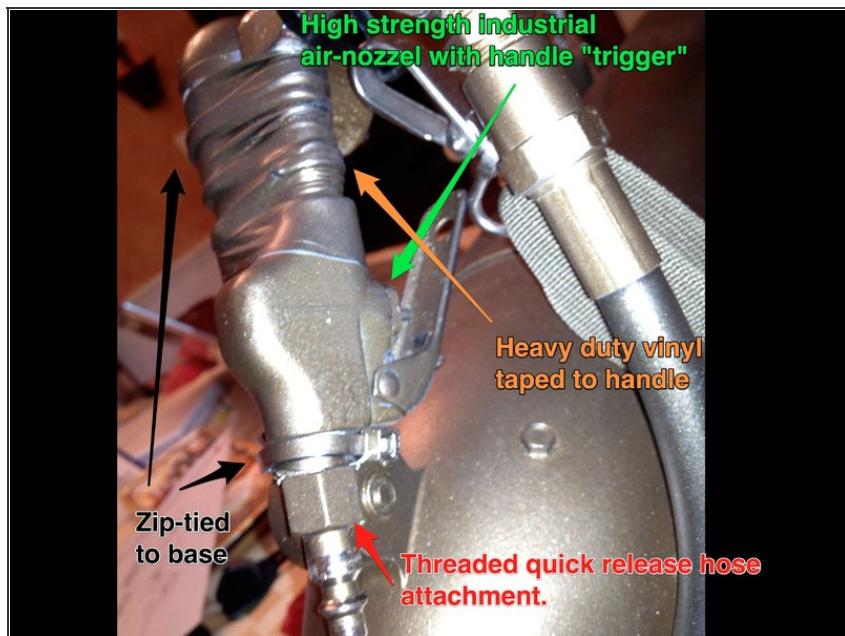
- Wires to the battery holder are routed through a flexible hose held in place with plastic pipe holders. Self-tapping screws are used to hold them in place.
- Fire extinguisher hose is attached to the intake connector and runs into the interior where it is connected to the back of the CO<sub>2</sub> nozzle at the rear of the wheel hub.

## Step 18



- The screw-gun motor is powered by a battery pack which is mounted on the side of the unit in a closable plastic case (in this case, an old drill bit holder). The wires can be soldered or attached via a quick-release connector.

## Step 19



- A high-strength industrial air nozzle with a trigger handle is used to regulate and control the flow of CO<sub>2</sub> when "firing" the gun.
- The handle is zip-tied to the PVC and metal pipe handle of the metal light housing. Make sure to cut the excess pieces of the zip-ties flush to avoid any injuries from sharp edges.
- Heavy-duty vinyl tape is used to secure the nozzle gun to the PVC handle.
- A threaded heavy-duty quick-release connector is inserted into the intake side of the air nozzle. More details are in the next step.

## Step 20



- A heavy-duty quick-release air-valve connector with safety shut-off valve is connected to the hose coming from the CO<sub>2</sub> tank. This is then connected to the intake connector on the air-nozzle "trigger."
- All connectors, pipes, and fittings need to have nylon tape at the connection points. Everything must be wrench-tightened and pressure-tested.
- Gloves should be worn while operating the unit to prevent any freeze-burns. Do not operate in closed spaces.
- Do not shoot directly at people.
- Adult supervision is required.
- A hose clamp can be used to keep the handle valve of the CO<sub>2</sub> fire extinguisher open while using the gun. This allows quick deployment and shut-off (the clamp can be slid on and off quickly if it is not fully tightened).

## Step 21



- Here is the final gun with all the bells and whistles added.
- A shoulder strap can be added to help carry the unit.

## Step 22



- Here is the Steampunk CO<sub>2</sub> Gatling Gun completed with the full costume.

It is one of the "coolest" costume weapons you will probably see.

Check it out in action: [http://youtu.be/yffzozK\\_AKs](http://youtu.be/yffzozK_AKs)

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